Junior Ranger Handbook

A Guide to Discovery and Exploration of Hawai'i Volcanoes National Park

This activity guide is recommended for ages 7 to 12.
It's a great way for the family to discover Hawai'i Volcanoes National Park together.

Welcome to Hawai'i Volcanoes National Park!

Hawai'i Volcanoes National Park is a special place because it is home to two of the most active volcanoes in the world, many rare plants and animals, and several sites important to native Hawaiian culture. By becoming a Junior Ranger, you can help protect these natural and cultural resources for the enjoyment of present and future generations.

What is a Junior Ranger?

Junior Rangers have fun learning about the park and share their knowledge with others. Over two million people come to the park every year! Park rangers need help teaching visitors to care for the park and depend on junior rangers to lend a hand with this task.

You have a very important job. Are you ready to help take care of Hawai'i Volcanoes National Park?!?!?

How do I become a Junior Ranger?

Watch a film at the visitor center or participate in a ranger-guided program.

Complete at least two explorations and have your family check your work.
(See the park map for exploration locations.)

Create a poster.

Bring your completed workbook and poster to Kīlauea Visitor Center by 4:00 p.m.

Kīlauea Visitor Center

Getting Started: What's in the Park?

How do you find out more about Hawai'i Volcanoes National Park and complete the first requirement of becoming a Junior Ranger?

Join a ranger-guided program. Programs are posted in the Kīlauea Visitor Center and at Jaggar Museum. They are posted daily after 9:00 a.m.

OR

See a film. Films are shown on the hour at the visitor center auditorium beginning at 9:00 a.m. until 4:00 p.m. daily. Please check at the information desk for changes in the schedule.

Which ranger-guided program or film did you attend?

_____

Name two things that you learned from this activity that make Hawai'i Volcanoes National Park a special place. Please explain why.

1. _____

_____

2. _____

_____

Now find at least two explorations you would like to complete...
Talk with your family about what you want to see during your visit. The exploration locations are listed at the beginning of each activity.

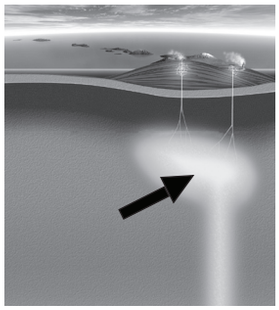
Want to learn more?
Take a hike. Hiking trails are shown on your park brochure map. For more information, talk to staff at the Kīlauea Visitor Center information desk.

Exploration 1: Kīlauea Visitor Center Scavenger Hunt

Find answers in the visitor center exhibits.

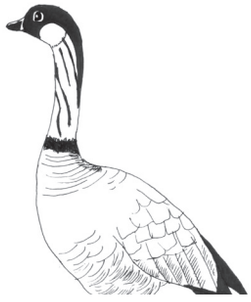
SCAVENGER HUNT PART 1 Answer ALL of the following questions:

1. What is feeding fresh magma to Kīlauea and Mauna Loa volcanoes?



2. The ʻōhiʻa tree has red "puff ball" flowers. What is the flower's name?

3. What endangered species is the Hawaiʻi state bird?



4. Where is the home of Pele, the Hawaiian volcano deity?

SCAVENGER HUNT PART 2 Answer ANY 5 of the following questions:

1. What is the name of native Hawaiian red pond shrimp?

2. When do lava flow crickets come out of cracks to devour insects and plant debris?

3. What is the Hawaiian name for the Hawaiian Hawksbill Sea Turtle?

4. What is the name of the red bird with the white lower underbelly that sips nectar from the lehua blossoms?

5. The English translation for "Kīlauea" is _____.

6. Name the tree that has two kinds of leaves. One of them is sickle-shaped.

7. Dr. _____ was the geologist who carried out some of the world's first studies of active erupting volcanoes in Hawai'i.

8. Name one of the two native Hawaiian butterflies.

9. How long does it take a Kōlea (Pacific Golden Plover) to fly to Hawai'i from its summer breeding grounds in Alaska?

10. Name one Hawaiian plant that has seeds that float in the ocean.

11. Name the bright red bird with the long, curved, orange bill?

12. At the end of its life, the Ka'ū silversword ('āhinahina) sends up one of the world's most spectacular blooms. How long does the Ka'ū silversword live?

13. Name one non-native animal that is destroying the rain forest.

14. In most Hawaiian rain forests, what two species of trees grow bigger and taller to dominate the canopy?

Exploration 2: Outside the Kīlauea Visitor Center

Learn to Find and Protect Three Homes in the Park.

Our park has many trees that you cannot find anywhere else in the world. These special trees are home to many tiny plants and animals. Can you find plants or animals living on these trees?

Koa (Ko–ah) is good for making canoes because of its strong, hard wood. Koa grows canoe–shaped "leaves" and has white bark.

ʻŌhiʻa (Oh–hee–ah) trees have red "puff-ball" flowers. Some birds drink the sweet nectar (sugar water) found inside these flowers.

Hāpuʻu (Hah–poo–oo) tree ferns can grow to be 25 feet tall. The soft, golden fuzz at the base of the fronds is called pulu. Hāpuʻu use the pulu to protect their young fronds. You can feel the pulu but please leave it on the tree fern.

Draw a plant or animal that you found on a koa tree, ʻōhiʻa tree, or hāpuʻu tree fern.

Type of Tree _____

Does the plant or animal you drew use the tree for: (circle one or more)

food shelter protection home

What do you think would happen to the plant or animal you drew if the tree was damaged?

_____

What can you do to protect plants and animals here in the park and at home?

_____

_____

Want to learn more?
Find out more about how the park is trying to save ecosystems here in your park brochure.

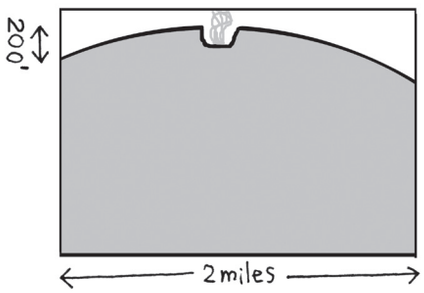
At home: Find out which plants grow in your area and no where else, and plant one of them in your yard, school, or local park.

Exploration 3: The Jaggar Museum Observation Deck

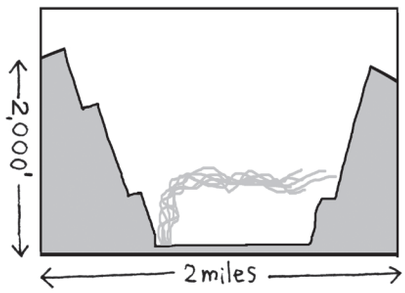
Be a Scientist: Observe Changes of a Natural Laboratory.

Stand at the caldera overlook next to the museum. The scenery before you has changed its appearance many times over the centuries. Scientists look at Kīlauea as a giant laboratory that helps them better understand volcanoes. Besides special tools that help them monitor the changes in the volcano, scientists also study Kīlauea's history so they can make possible predictions for volcanic activity in the future. Today, you are the scientist. Look at the history of Kīlauea over the last 600 years below. Then, examine Kīlauea caldera today. How do you think Kīlauea will change in the years to come?

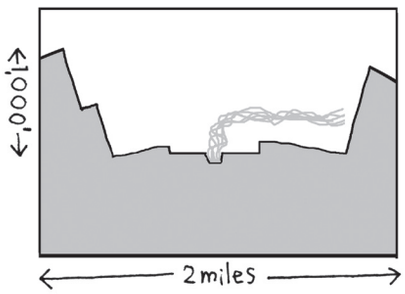
600 Years Ago
The summit was much higher.



500 Years Ago
The entire summit collapsed.



300 Years Ago
Eruptions began to refill the pit.



Draw a picture of the caldera today.

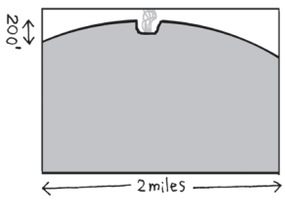
How deep is the caldera?

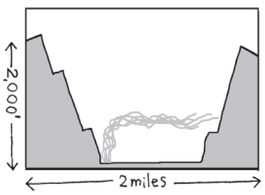
_____

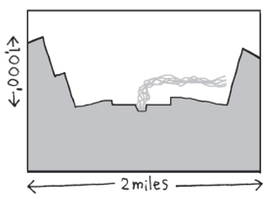
How wide is the caldera?

_____

From looking at how the caldera has changed over time, circle your prediction as to what Kīlauea may look like in another 400 years.







Why did you circle that diagram? _____

_____

Many people looking out at the summit of Kīlauea see a sacred landscape where every hill and plant tell a different part of the story. Read the story below.

Pele, Hawaiian goddess of volcanoes

According to early Hawaiian traditions, there was a time in the mysterious past when the air was surrounded with spiritual beings and a thin veil divided the living from the dead, the natural from the supernatural. During that time Pele, goddess of the volcano, came to the islands of Hawai'i.

Having traveled for many miles in search of a suitable home for her fire and family, Pele settled in the crater of Halema'uma'u within the summit caldera of Kīlauea.

Pele is volcanism in all its forms. She is also known as Pelehonuamea, Pele of the sacred land. When her molten body moves, the land trembles and the sky is afire with a crimson glow.

Those present whisper in awe,
" 'Ae aia la 'o Pele" ... "There is Pele."

Find Pele's home, Halema'uma'u Crater. What color are the fumes rising from the eruption deep in the crater today?

_____

Do you think Halema'uma'u is a good home for Pele? Why or why not?

_____

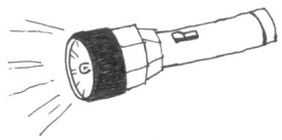
_____

Want to learn more?
Check out Jaggar Museum. You can learn how scientists measure changes in the volcanoes, see different types of lava rock, and find out what Hawaiians experienced on Kīlauea.

At home: Go to the United States Geological Survey, Hawaiian Volcano Observatory website at http://hvo.wr.usgs.gov/. It has daily updates on volcanic activity, live cameras, history, and lots more.

Exploration 4: Thurston Lava Tube (Nāhuku)

Investigate the past and the present in an underground world.



Thurston Lava Tube has two parts: an easy, well–lit section and a dark section that involves climbing down boulders to enter. If you want to go into the dark side of Thurston, you will need good walking shoes and a flashlight.

Thurston Lava Tube, or Nāhuku (Nah–hoo–koo) to people of Hawai'i, formed about 600 years ago. As a lava river flowed down the slopes of Kīlauea, the air temperature cooled the surface to a crust of stone. Molten lava kept flowing underneath the crust, creating an underground river of lava. When the eruption ended, liquid lava drained out from beneath the crust and left behind the long cave.

See how much you can find out about lava tubes by your own investigations. Walk into Nāhuku and look carefully at the floor, walls, and roof of the tube.

Is anything growing out of the ceiling? If yes, what? _____

_____

Along the wall of the lava tube, look for shelves called "bathtub rings." How do you think they were formed?

_____

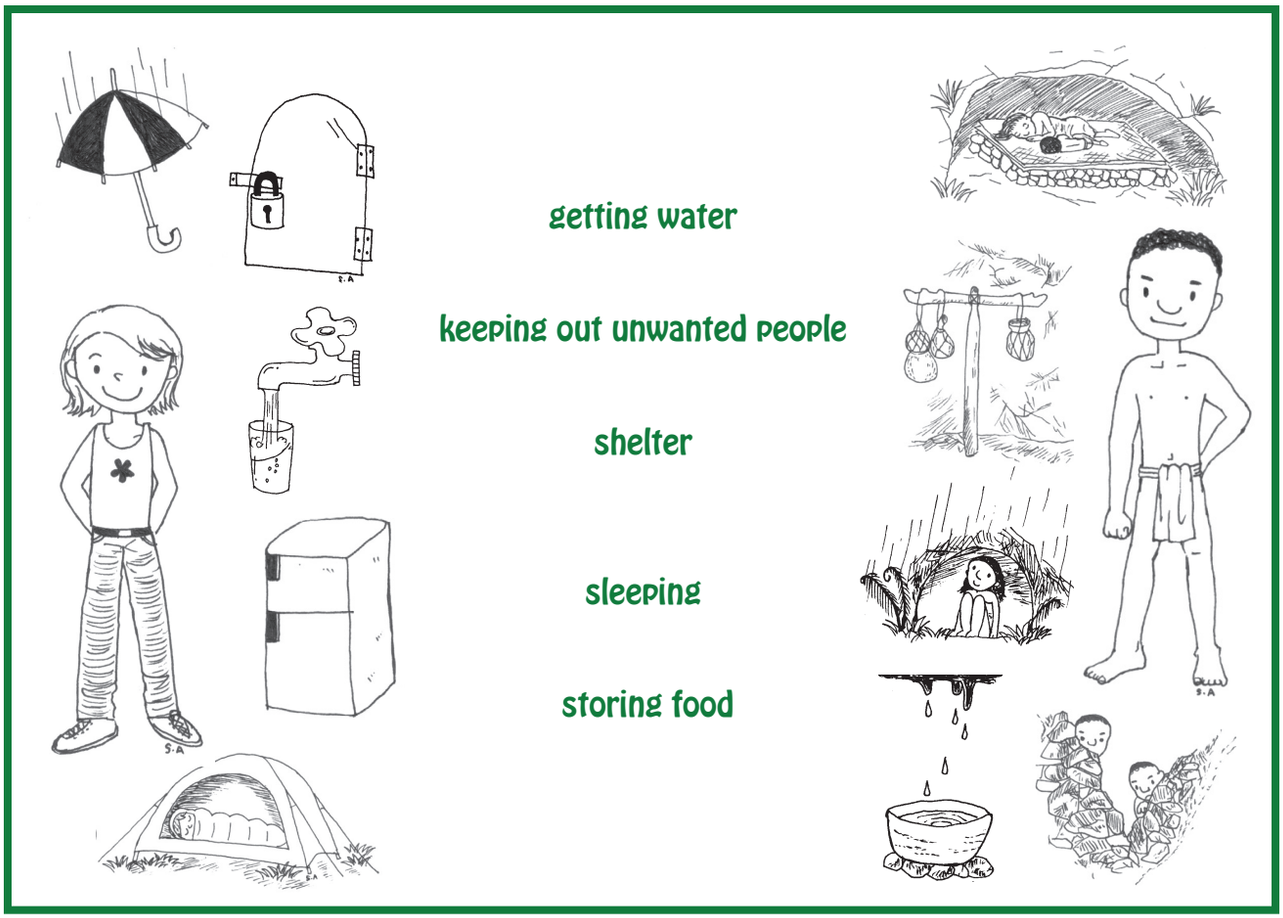
_____

Lava tubes are special places. They have fragile rock formations and ecosystems that we are only beginning to understand. Lava tubes also hold special meanings for Hawaiians.

What does it feel like to be in the lava tube? _____

Would you want to live there? Why or why not? _____

Do you see anything in the lava tube that would help you survive? Archeologists have found many ways that ancient Hawaiians used lava tubes. Draw a line connecting a person's needs to how it is solved today and how it was solved by Hawaiians in ancient times.



Today, people love to visit lava tubes. The park allows people into Nāhuku but protects other lava tubes within the park boundary. Do you think this is a good idea? Why or why not?

_____

_____

Want to learn more?
Read "From the Mountains to the Sea, Early Hawaiian Life" by Julie Stewart Williams.

At Home: Do you have caves back home? Were they formed the same way? What's living in them? How have people used them?

Exploration 5: Kīlauea Iki Overlook
Listen to the Sounds of the Rain Forest

Walk along the Kīlauea Iki trail toward Nāhuku. Stand quietly and close your eyes. Listen. Make a list of both the natural and human-made sounds in the box to the right.

Can you hear some of these sounds where you live? Circle the sounds you might hear at home. Are the sounds different than what you hear at home? How?

_____

_____

_____

_____

List the sounds you hear below:

Natural Sounds
(made by animals, plants, and natural things)

_____

_____

_____

Human Sounds
(made by people or machines)

_____

_____

_____

Do you think it's important to protect the natural sounds in our parks? If yes, why?

_____

_____

After you return home, try the same experiment.

Where do you think you will hear more natural sounds, at home or here at Hawai'i Volcanoes?

_____

_____

_____

Where do you think you will hear more human sounds, at home or here?

_____

_____

_____

Back at the Kīlauea Visitor Center

Draw a Poster to Help Spread the Word!

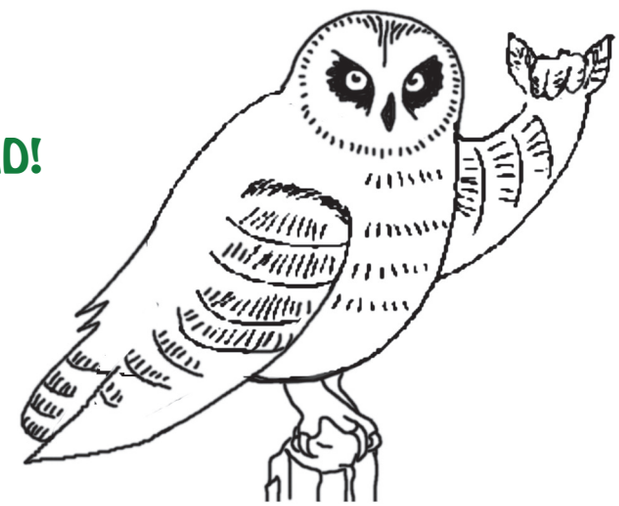
Now you have seen how Hawai'i Volcanoes National Park is like no other place on the planet. While completing your Junior Ranger handbook you became a witness to a few of the unique Hawaiian plants and animals. You traveled around one of the most active volcanoes on the planet, Kīlauea. Finally, your Junior Ranger experience has also exposed you to the unique cultural history of Hawai'i. You now have a better understanding of what makes Hawai'i Volcanoes National Park a very special place. On the next page, draw a poster that will share one of the important things you learned today.

How can you help the park?

- Rocks can tell stories of amazing eruptions, but only if we leave them where they fell or flowed.
- Plants are both homes and supermarkets for animals, insects, birds, and other plants. We need to admire them gently and let them grow unharmed.
- Remember to stop talking and playing music; only then can we hear the sounds of the rain forest or the drip of water in a lava tube.
- Stay on trails and keep plants and critters safe from being stepped on.
- Respect cultural sites throughout the park, so they will continue to tell the stories of this island.

OK Junior Ranger Candidate,

GO SPREAD THE WORD!



One of the best ways to help protect the park is to tell others about it! Design a poster teaching people one way to protect the park using the ideas on the previous page.

Your name: _____ Age: _____ From: _____

Want to learn more?

Become a Junior Ranger online at
http://www.nps.gov/webrangers
Find out more about our volcanoes at
http://hvo.wr.usgs.gov/
Discover more about the park at
http://www.nps.gov/havo/

Created by Hawai'i Volcanoes National Park
Illustrations by Sachi Aida and Joan M. Yoshioka
Photos by National Park Service and Bishop Museum

Special thanks to Friends of Hawai'i Volcanoes National Park and Hawai'i Natural History Association. This Junior Ranger Activity Booklet was made possible in part by a grant from the National Park Foundation through the generous support of Unilever, a Proud Partner of America's National Parks and a National Corporate Partner of the Junior Ranger Program.

Certificate

This certifies that

_____

has completed the requirements on

_____

to be an official Junior Ranger of

Hawai'i Volcanoes National Park

As a Junior Ranger, I will:

- Leave only footprints and take only photographs in natural areas
- Do all that I can to help protect living things and special places like Hawai'i Volcanoes National Park
- Continue to learn about nature, geology, and culture even after I leave Hawai'i Volcanoes National Park
- Share what I learn with others

_____ Park Ranger

_____ Junior Ranger